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Vol. 126 MAY 1954 No. 5

CONTENTS

Editorial

Pharmacy Boards Deserve Better Support 154

Articles

The Latent and Inherent Powers of Boards of Pharmacy. By R. L. Swain 156

The Effects of Antibacterial Agents in Combination With an Intestinal Adsorbent. By J. N. Moss and G. J. Martin 165

The Pharmaceutical Manufacturer's Stake in the Prescription Department. By V. A. Burgher 171

The Advantages to the Public of Restricting the Sale of Drugs and Medicines to the Retail Drug Store Under the Supervision of Registered Pharmacists. By S. A. Herzog 177

Selected Abstracts 185

E D I T O R I A L

PHARMACY BOARDS DESERVE BETTER SUPPORT

IN this issue, Dr. Robert L. Swain discusses certain powers of our boards of pharmacy which might well be exercised more firmly for the betterment of pharmacy. It is an article well worth reading not only by board members but by all pharmacists interested in their profession.

Over the years the support given to boards of pharmacy has not been lacking except among the rank and file of pharmacists themselves. While it is the sworn duty of a board member to enforce the law and the regulations pertaining to it, nothing causes him to be more unpopular with his fellow pharmacists than to do so. Pharmacy Acts, by and large, are passed with public welfare and maintaining the standards of the profession as their sole objectives. With such objectives surely no pharmacist can disagree. Pharmacy Acts and Board Regulations are issued with the knowledge and consent of practicing pharmacists and they are in fact usually endorsed formally by the state association before they are submitted to the legislature. Why then, in Heaven's name, is there such a hue and cry when some pharmacist is reprimanded or penalized by the board for some infraction?

Many pharmacists act on the premise that it is the function of the board member to intercede for any pharmacist guilty of even the most gross misdemeanor under the Act. If he fails to do so, in violation of his oath, he is maligned and subjected to all manner of abuse. Even the governor is sent letters of complaint inferring that the board member is either incompetent or suffering from some sadistic impulse. Only the most resolute can withstand such treatment by those for whom professional standards should mean just as much as to themselves.

The results of this oft-repeated situation over the years are tragic indeed. More and more, our profession has become saddled with restrictive and punitive legislation enforced by those *outside the profession.* This is always the reward for any group which fails to police itself.

What is still worse and even more to our discredit is that some segments of pharmacy even welcomed and worked assiduously for the enactment of this same legislation restricting our professional prerogatives. In doing this we, in effect, announced to all and sundry that we could not be trusted and that only the awesome presence of a federal inspector could make us do our professional duty. Is there indeed any other profession so regulated by federal law?

While much has been lost there is still more to lose. Here and there among our states conscientious boards are still trying to upgrade the profession. They deserve the support and respect of every honest pharmacist for improve we must.

It does little good to worry and fret about public relations, inter-professional relations and all of the other promotional activities which we need until we put our own house in order. Almost every board knows what needs to be done. Will we as pharmacists support them let the chips fall where they may? If we will pharmacy can begin to regain some of the prestige which we have lost by our repeated failure to face abuses squarely and correct them.

L. F. Tice

THE LATENT AND INHERENT POWERS OF BOARDS OF PHARMACY *

By Robert L. Swain **

IT has long been my opinion that boards of pharmacy are possessed of certain inherent and latent powers which have been, for the most part, overlooked or ignored in the formulation and prosecution of enforcement policies, and if this concept is well founded, it follows that the enforcement and administration of state pharmacy laws would be greatly strengthened and expanded if these latent and inherent powers were understood and more effectively used.

This whole matter can be brought into proper focus by these questions:

Has the board of pharmacy the inherent power to cancel or revoke certificates of registration of those pharmacists found guilty of moral turpitude? May the board declare registration null and void in cases of flagrant unprofessional conduct?

In other words, does or does not the board have the authority to deny those pharmacists the right to practice who show, by their actions, that they habitually violate the conditions essential to registration? Put another way, does not the pharmacy act infer or imply that these conditions are continuous, that they may not be waived, and thus the pharmacist who ceases to comply with them forfeits his right to licensure?

The subject is of the utmost importance, because the boards of pharmacy are burdened with definite duties and responsibilities and it follows that they cannot serve the purpose for which they were intended unless the duties and responsibilities are reflected in their official actions and implemented in their enforcement programs.

At the outset of our discussion, we should consider under what condition one enters upon the practice of pharmacy. There are those who say it is a "privilege" conferred by law while others contend that it is a "right" which accrues to a person, once he has met the terms upon which the right is based.

It is my feeling that no one has a *right* to enter a profession but that he is privileged to do so under certain conditions. It is my

* Presented at Conference of Boards and Colleges of Pharmacy—District No. 2, Pocono Manor, Pennsylvania, March 30, 1954.

** Editor, Drug Topics and Drug Trade News.

belief, also, that the conditions which must be met by a person entering a profession must also be observed as long as the privilege of remaining in the profession is exercised.

By this I mean that if the pharmacy law, for instance, lays down good moral character as a condition precedent to becoming a registered pharmacist, the condition continues as long as one remains a registered pharmacist. To say that such condition applies only when application for registration is made, and ceases as soon as registration is acquired, is to attempt an interpretation of the law which is ridiculous in the extreme.

This view seems justified as a matter of law. In a recent case involving the disbarment of a lawyer for unprofessional conduct, Justice Cardozo recognized this principle in the following language: "Membership in the bar is a privilege burdened with conditions. A fair, private and professional character is one of them. Compliance with that condition is essential at the moment of admission, but it is equally essential afterwards. Whenever the condition is broken, the privilege is lost."

Now, it should be pointed out that the lawyer is regarded as an officer of the court—a fact which gives the court broad disciplinary and jurisdictional powers. But the concept expressed by Justice Cardozo that the privilege is a continuing one would seem equally applicable to every profession.

But, even in those cases where it is held that one has a *right* to enter the practice of pharmacy, the right would seem to collapse once the conditions upon which the right is based no longer exist. At best, it would have to be considered a qualified right, and the continuous enjoyment of it would have to harmonize with the statutory and other conditions upon which the right is based.

Our pharmacy laws, quite properly in my judgment, include many grants of authority and designation of powers which are phrased in general terms and thus admit of interpretation and evaluation upon the part of the boards.

While at first glance this might be considered a defect in that the law should be as specific and definite as possible, the better view in cases like this would seem to be that the legislature acted wisely in using generalization, rather than specific terms, because in many instances, the subject matter is one which cannot be definitely and rigidly defined.

At this point, it might be well to cite certain examples from our state pharmacy acts. In the pharmacy law of Ohio, we find that among the requirements for examination and registration as a pharmacist is one demanding that applicants "shall be of good moral character and habits."

In New York, the applicant is required to be "of good moral character." The Connecticut law states, "No person shall be admitted to take such an examination until he has satisfied the Commission of good moral character."

Similar provisions are to be found in virtually every pharmacy act.

Now, let us ask, what constitutes good moral character, or what constitutes immoral character? The mere asking of these questions is sufficient to indicate that this is an area which the boards might find highly profitable to explore.

Now, it cannot be said that the requirement of good moral character, as it applies in our pharmacy acts, is a mere gesture, because in every case it is set forth as a requirement which those seeking to enter pharmacy must meet.

It is a well known rule of construction that every requirement such as this must be given effect, as it cannot be surmised, assumed or implied that the legislature deliberately resorted to meaningless language when it set forth in particular form the conditions precedent to registration as a pharmacist.

It would, therefore, seem to follow that not only must applicants for examination and registration be persons of good moral character, as this term would reasonably and normally be understood, but that they must continue to be persons of good moral character as long as the privilege of remaining in the profession is exercised.

And, in those cases where the board finds that the registrant has ceased to be a person of good moral character, it would seem that his registration automatically ceases, simply because he has vitiated the conditions upon which the privilege rests.

The Arizona Pharmacy Act gives the Board power to adopt "rules and regulations necessary for the protection of the public appertaining to the practice of pharmacy." The Act also empowers the board "to enforce the provisions of all laws of the state which pertain to the practice of pharmacy." The New Jersey Board was set up in pursuance of an act "to regulate the practice of pharmacy."

In Minnesota, the board has power to suspend or revoke the license of a pharmacist for "unprofessional conduct or conduct endangering public health." Here we are confronted with a broad grant of regulatory authority in which the actual content and scope of the power is left to the board to define and determine.

The Minnesota pharmacy act declares that the board of pharmacy "shall have the power, and shall be its duty" to regulate the practice of pharmacy and "to regulate the sale of drugs, medicines, chemicals and poisons."

Again, how far does the power go, and how fully embracive is the duty? In attempting an answer, it must be assumed that the power and the duty were purposely set forth in the act and that the legislature meant the law to mean what it says. In attempting to deal with the broad concept of "the practice of pharmacy" the boards are virtually dealing with a virgin field.

But, however deep and broad its meaning may be, the board of pharmacy, in practically every state, is vested with the obligation conferred by the legislature to regulate the practice of pharmacy.

This would certainly seem to give the board authority over those unprofessional, non-professional, and unethical situations which would seem to be inconsistent with the practice of pharmacy.

Does the power to regulate the practice of pharmacy authorize the board to devise a Code of Professional Conduct and to establish the professional standards which the practice of pharmacy must meet? Would it authorize the board to deal with those environmental matters with which the practice of pharmacy must contend at the retail level?

Would it authorize a board to cancel, revoke, or suspend registration in those instances where the registrant so conducts himself as to show his unfitness for and participation in the practice of pharmacy?

Admittedly these questions are more easily asked than answered. But, it would seem reasonable to insist that the power to regulate the practice of pharmacy is an affirmative one, and that the legislature intended that the board of pharmacy should meet this obligation as well as the others imposed by law.

The following quotation from the Maryland Pharmacy Act is of interest: "No permit shall be issued or continued for the conduct of a pharmacy unless the premises of such pharmacy shall be equipped

with proper sanitary appliances and kept in a clean and orderly manner. . . .

"On evidence satisfactory to the said Maryland Board of Pharmacy; (a) that the pharmacy for which the permit is sought will be conducted in full compliance with the law and with the rules and regulations of the said Maryland Board of Pharmacy; (b) that the location and appointments of said pharmacy are such that it can be operated and maintained without endangering the public health or safety; and (c) that said pharmacy will be constantly under the personal and immediate supervision of a registered pharmacist, a permit shall be issued to such persons, co-partnerships, associations or corporations as the said Maryland Board of Pharmacy shall deem qualified to conduct such pharmacy."

Each of these legislative statements merits close study, because they indicate as a matter of basic construction that the Board of Pharmacy has powers not expressly or specifically stated. In all these cases it would seem to follow that, once the conditions which must be met before a drug store permit is granted are breached, the permit itself falls.

It can hardly be assumed that an applicant for a permit in Maryland must prove to the satisfaction of the Board "that the location and appointments of said pharmacy are such that it can be operated and maintained without endangering the health or public safety," and once the permit is obtained, proceed to conduct a pharmacy which does endanger the public health or safety.

In all of this it seems to me that the power to grant a permit carries with it the power to withhold or the power to revoke, and that a permit, the same as is true of registration, is subject to conditions and qualifications the nature of which, and the disposition of which are largely in the hands of the boards of pharmacy.

Interestingly enough, the New York Pharmacy Act declares that "any license or certificate may be revoked or suspended or the holder thereof reprimanded or disciplined" upon proof that "the holder thereof has been convicted of a crime or gross immorality" and upon proof that the "holder thereof is unfit or incompetent from negligence, habits, or other causes."

It will be noted that the legislature did not define the scope of the term "a crime or gross immorality" nor did it state what would amount to unfitness or incompetence resulting from "negligence, habits, or other causes."

In the absence of any legislative pronouncements upon matters of such importance that they authorize revocation or suspension of certificates of registration, the only sensible conclusion is that the enforcement, administration and interpretation of these terms are left to the discretion of the board.

It would be possible to cite similar phraseology from other pharmacy acts which give additional force to the conviction that even in these cases where the powers of the boards of pharmacy are not specifically spelled out, they nonetheless exist, because these powers are inherent in the very responsibilities and obligations which the pharmacy act imposes upon the boards of pharmacy.

It is true that at the present, at least, we have to resort to logic or philosophical considerations in support of convictions and theories upon which the doctrine of inherent and latent powers rests. But it seems inconceivable that the legislature meant to lay down rather stringent conditions upon persons seeking registration and then to declare that those conditions are meaningless or non-existent once registration was secured.

It all goes back to the soundness of the belief that those engaged in the practice of pharmacy are enjoying a privilege conferred by law and that the conditions under which the privilege was first acquired continue as long as the privilege is enjoyed.

If this point of view is legally and technically correct, then it follows the most of the immoral and unprofessional conduct occurring among pharmacists can be dealt with by the boards under their respective pharmacy acts.

It would seem to follow, for instance, that any person who becomes addicted to narcotic drugs or who becomes an alcoholic, or who habitually violates the pharmacy act by permitting non-registered employees to be in charge of the drug store, or who permits prescriptions to be filled by non-registered personnel, or who indulges substitution, illegal sales of prescription legend drugs, or who does many of the things which qualify as unprofessional, unethical or immoral conduct, can be disciplined by the board under its inherent and latent powers.

Now, in this discussion, it is not to be inferred that boards of pharmacy should be going around hunting for trouble or stirring up trouble. It does not mean that they should employ their powers in arbitrary, capricious, or an unbusinesslike way. They should not

proceed as though the legislature had given them a club to beat pharmacists in line, or that they were authorized to promulgate some highly theoretical, rarefied, or idealistic code of professional or ethical conduct. They should be forceful and yet prudent and practical in the exercise of these inherent and latent powers.

Indeed, the boards, in dealing with this phase of their activities, might take a leaf from the book of the Food and Drug Administration, and the Bureau of Narcotics.

Neither of these federal agencies brings a case unless it is pretty sure that it is water-tight so far as the facts are concerned. Indeed, a study of the prosecutions brought by these governmental agencies discloses that the facts are such as to strongly appeal to the court as sharply in the public interest.

No cases were brought against a pharmacist for over-the-counter sale of prescription legend drugs unless there had been flagrant and wholly unjustified infractions of the law.

In its earlier prosecutions dealing with this phase of its work, the Food and Drug Administration relied upon cases involving literally several thousand barbiturates or other high-potency drugs which were sold without prescription. Such a situation, when presented in terms of its public health and social impact, was almost certain to stimulate the sympathy of the court to the extent that both as a matter of common sense and good conscience, it had to decide against the accused.

Indeed, the Sullivan case which is the basis of the contention of the government that the Food, Drug and Cosmetic Act reached down to the level of local retail sales, rose out of a violation of the law which limits legend drugs to prescription.

Once a precedent has been established, the way is clear for bringing less flagrant cases, as the law is now construed to reach the over-the-counter sale of prescription legend drugs, irrespective of the amount or the conditions under which the sale is made.

The same enforcement techniques are used by the Bureau of Narcotics. Both of these agencies have resorted to cases so sharply in conflict with the public interest that they have been highly successful in having the courts accept the enforcement point of view which these agencies deliberately sought to have supported by court opinions.

My point is that the boards of pharmacy would de well to follow the same enforcement techniques. In those cases in which the alleged

violation is disputed, or where the language under which the board proceeds is general rather than specific, the board should be astute enough to predicate its action upon misconduct so flagrant that its view of the case would meet with court approval.

A board, for instance, could not reasonably suspend or revoke a certificate of registration, because the registered pharmacist involved was found at infrequent intervals to be absent from his store. On the other hand, if such absence were habitual, as is sometimes the case, the board would seem to be in a sound position for its disciplinary action.

It is, in my judgment, fully within the powers of the boards of pharmacy substantially to change their enforcement policies if they would very seriously study their latent and inherent powers, and then apply them in appropriate cases.

One criticism of boards of pharmacy, so far as their enforcement activities are concerned, is that inasmuch as the members of the board are practicing pharmacists, they are very reluctant to proceed against their fellow pharmacists.

Indeed, an instance has come to my attention where a pharmacist board member in a certain town prevented the board from prosecuting a competitor for continued violation of the Pharmacy Act, simply because the board member was afraid that any disciplinary action would react against him in his relatively small community.

While the sensibilities of the board member, in this case, are understandable, they cannot be used to condone or excuse the failure of the board to enforce the pharmacy act which is, as we all know, legislation intended for the benefit and protection of the public.

While I have referred to only one instance of such reluctance, I know, as a matter of personal experience, that it has a great deal to do with the lack of enforcement of our pharmacy laws, certainly in many areas of our country.

In many respects, the points of view which are expressed and amplified in this address are more or less novel in that they deal with the implied rather than expressed powers of the boards. But, express power has been held to include those implied powers which reasonably follow from those expressly granted. Indeed, the implications of power are sometimes more profound than the expression itself.

But, because of the newness of the points of view upon which this address is based, boards of pharmacy are urged to discuss the

matter with the Attorney General of their respective states in the hope that he, as the chief law officer of the state, may be found in agreement with it.

Indeed, in California and New Jersey, and possibly in other states, the boards have conferred with their Attorney General, although I do not know, as of this time, just what the official reaction was.

At this point it might be well to stress that the enforcement of the Pharmacy Act is more basic to pharmacy than has been generally recognized. If a pharmacist is permitted to be habitually away from his drug store, is this not tantamount to a declaration by him that the practice of pharmacy means very little to the public and therefore can be entrusted to anyone? If non-registered employees are permitted to fill prescriptions in the absence of the registered pharmacist, does this not imply to the public that prescription work is more or less trivial and can be engaged in by anybody who sees fit to attempt it?

It would be strongly in the interest of pharmacy as a profession if the laws surrounding it were adequately enforced because the mere enforcement of these laws would amount to a declaration by the state that pharmacy is a serious public health calling, and that in its operation it conforms to the rigid requirements which the legislature has adopted in the public interest.

The mere fact that this point of view has not been a controlling one in the matter of pharmacy law enforcement may have much to do with the willingness of the public to purchase drugs, medicines, and other drug store supplies from super-markets and other non-drug outlets. If these products may be obtained in drug stores from untrained and unqualified clerks, what is to prevent the public from obtaining them in other outlets from similarly untrained and unqualified clerks? The matter is just that simple, just that profound.

It would seem high time for us to develop as expertly, as wisely and as prudently as we can a new enforcement program in which we will bring out into the open the latent and inherent powers of the boards of pharmacy. Our profession is beset with many problems—professional, ethical, and economic, which must be dealt with forcefully and effectively if pharmacy is to attain and maintain its proper place in the vital and ever-expanding field of medical care.

THE EFFECTS OF ANTIBACTERIAL AGENTS IN COMBINATION WITH AN INTESTINAL ADSORBENT

By J. N. Moss and G. J. Martin *

IN the past decade evidence of bacterial resistance to the common antibiotics has become increasingly prominent. As newer agents appeared on the scene and clinical failures with isolated antibiotics occurred it was only logical that a combination of two antibiotics would be tried. Unsatisfactory and even detrimental results were reported, especially in the laboratory, providing the impetus for a large scale investigation on various antibiotic combinations. Contributions from all parts of the world have increased our knowledge considerably as to the expected effects of such combinations although the theoretical basis remains a matter for speculation. As Armstrong and Larner have so clearly stated: "The indiscriminate administration of an assorted salad of antibiotics is . . . to be decried" (1).

A number of clinical reports have appeared concerning the efficacy of a combination of a polyamine methylene resin, sodium aluminum silicate and magnesium silicate.** Beneficial results with such a preparation have been ascribed to the capacity for adsorption from the gastrointestinal tract of substances which are potentially toxic to the body (2, 3). It was decided to investigate the therapeutic results when such a combination was administered in conjunction with an antibiotic and sulfonamide compound. However, before attempting any clinical trials it was deemed necessary to carry out preliminary *in vitro* and *in vivo* tests, thereby providing a firmer basis for analysis of results obtained in man. In this manner any loss or increase in activity of the combination of agents could be more easily observed.

The sulfonamide selected was phthalylsulfacetamide. Heineken and Seneca (4) have published their results in patients with ulcerative colitis treated with this sulfa compound. They concluded that the drug was "non-toxic and clinically safe. Its action . . . is interpreted as suppressing bacterial growth and thus removing the factor of secondary infection and affording an opportunity for healing."

* Research Laboratories, The National Drug Co., Philadelphia, Pa.
** Resion, National Drug Company.

Toxicological data on sodium phthalylsulfacetamide were supplied by Lehr (5). In albino rats the LD_{50} for the intraperitoneal route was shown to be 10 grams/kilo as compared to a value of 0.8 gram/kilo for sodium phthalylsulfathiazole administered to white mice. Absorption into the blood stream following oral administration was negligible although the compound diffused into the deeper layers of the gut wall. The author concluded that this sulfa drug possessed "many desirable properties of an intestinal antiseptic."

When phthalylsulfacetamide was administered orally to 4 normal adults in a dosage of 0.2 gm./kilo the stools were completely sterile by the fourth or fifth day in 3 of the subjects. In the fourth subject there were no coliform organisms by the seventh day and the total count was 10,000 organisms per gram of wet feces (6).

Pardo et al. (7) compared the phthalyl derivatives of sulfacetamide and sulfathiazole and concluded that the phthalylsulfacetamide had a lower toxicity and higher concentration in the intestinal walls which made it advantageous for use in the therapy of certain infections of the gastrointestinal tract.

Polymyxin B is a member of a group of compounds derived from *B. polymyxus* and its antibacterial spectrum includes a large number of gram negative organisms. When administered orally it is not absorbed from the intestinal tract (8, 9, 10). Aside from the repeated demonstration of the efficacy of polymyxin in Pseudomonas infections there have been several reports on its use in the treatment of gastrointestinal infections. Lieberman and Jawetz (10), for example, have published their results in Shigella infections or carrier states in children. Eighty-seven per cent of a series of 23 cases responded satisfactorily although previous sulfonamides and antibiotics had been non-effective.

Experimental

In vitro testing of the combination of phthalylsulfacetamide and polymyxin was carried out in Trypticase Soy Broth employing a serial dilution technique. The sulfa compound was sterilized by autoclaving while the polymyxin was sterilized by filtration. The inoculum consisted of one drop of an 18 hour TSB culture diluted 1:200 and turbidity readings on the Klett were carried out after 24 hours of incubation at 37° C.

Table 1 shows the results for *K. pneumoniae* and those for *P. vulgaris* will be found in Table 2.

TABLE I

K. pneumoniae 10031

Polymyxin μg./cc	Sulfa mg./cc. 0	0.18	0.37	0.75	1.5
0	185	166	144	115	95
0.125	180	150	131	100	82
0.25	180	146	116	94	80
0.5	173	92	0	0	0
1.0	135	0	0	0	0

TABLE II

P. vulgaris 9623

Polymyxin μg./cc	Sulfa mg./cc. 0	0.18	0.37	0.75	1.5
0	305	268	222	191	131
2.5	280	0	0	0	0
5.0	266	0	0	0	0
10.0	253	0	0	0	0
20.0	212	0	0	0	0

It can be seen from the tables that a definite increase in activity is associated with the combination of agents. For example, at a concentration of polymyxin of 0.5 microgram/cc. the Klett reading of 173 for *K. pneumoniae* does not show a significant change from the control value of 185. Phthalylsulfacetamide at 0.37 mg./cc. gave a reading of 144 indicating slight inhibition. When both agents were used at the above mentioned concentrations there was complete inhibition as shown by the Klett reading of 0. In the case of *P. vulgaris* the potentiation is even more marked amounting to a 500% increase in activity with the combination. Slight to moderate potentiation was observed against *E. coli, S. typhi, S. schottmulleri, Sh. dysenteriae, Ps. aeruginosa* and *Staph. aureus.* In no case did the combination of agents manifest any antagonistic action with the organisms tested.

Testing of the compounds for *in vivo* antibacterial activity was carried out in the rat. Nine groups, consisting of 5 rats per group, received the Resion, polymyxin and phthalylsulfacetamide individually and in all possible combinations, as indicated in the table, for one week. At the end of the experimental period fecal samples were collected under sterile conditions, weighed and ground with sterile alundum. Dilutions were made with sterile water and 0.1 cc. aliquots plated on Brain Heart Infusion Agar for total count and E. M. B. for coliform organisms. At the end of 48 hours of incubation the colonies were counted and expressed as count per gram of wet feces.

Table 3. Bacterial counts in rat feces following the administration of various agents. (All counts are average values for 5 animals and are expressed as count/gram wet feces.)

TABLE III

Agent	Total Count	Coliform Count
Control (Purina Chow)	104 billion	41.0 million
Phthalylsulfacetamide (In saline) (10 mg./rat b.i.d.)	2.5 billion	4.5 million
Polymyxin (1250 u. b.i.d.)	3.7 billion	2.2 million
Resion (0.22 cc. b.i.d.)	90.0 billion	40.0 million
Phthalylsulfacetamide and polymyxin (10 mg. & 1250 u. b.i.d.)	0.8 billion	2.3 million
Phthalylsulfacetamide and Resion (10 mg. in 0.2 cc. b.i.d.)	2.2 billion	2.3 million
Polymyxin and Resion (1250 u. in 0.2 cc. b.i.d.)	1.9 billion	2.2 million
Phthalylsulfacetamide plus Polymyxin plus Resion (Same dosage as above)	1.4 billion	1.2 million

Analysis of these *in vivo* results shows the expected reduction in total and coliform count with both the phthalylsulfacetamide and polymyxin, used individually and in combination. When Resion was used alone there was no antibacterial action, again as would be expected from its composition. Addition of Resion to the sulfa drug, or to polymyxin, or the use of all three agents together produced bacterial counts within the same range. Differences in count obtained with the antibacterial agents as compared to the control figures are decidedly significant. But the differences between the lower values (e.g., 0.8 and 1.4) are not significant by virtue of the limitations of the method used for bacterial counting.

It is reasonable to assume that because of the nature of the Resion, antibacterial agents such as polymyxin and phthalylsulfacetamide might possibly be adsorbed or bound to the particles of the resin. However, in view of the results obtained in this experiment it is evident that the antibacterial effect of either compound or the combination was not reduced.

In view of favorable clinical experiences with Resion as an intestinal adsorbent (3, 11-15) and the fact that it does not modify the activity of a combination of intestinal antibacterial agents such as polymyxin and phthalylsulfacetamide, it would seem that the use of all three agents together would afford a clinically desirable product. Such a product would have its greatest applicability to non-specific diarrheas in general and to the annoying cases of diarrhea occurring several weeks following broad spectrum antibiotic therapy.

Summary

(1) A combination of polymyxin and phthalylsulfacetamide showed definite synergistic action against *K. pneumoniae* and *P. vulgaris*. There was slight to moderate potentiation when several other organisms were used as the test system.

(2) When administered *in vivo*, singly and in combination with Resion, a marked drop in total and coliform count was observed. Resion did not modify the activity of the combination.

(3) A possible use of a combination of Resion, polymyxin and phthalylsulfacetamide is discussed.

REFERENCES

(1) Armstrong, C. W. J. and Larner, A. E., *J. Lab. Clin. Med. 37:*584 (1951).

(2) Martin, G. J. and Wilkinson, J., *Arch. Biochem. 12:*95 (1947).

(3) Lichtman, A. L., *Exptl. Med. Surg. 9:*90 (1951).

(4) Heineken, T. and Seneca, H., *Rev. Gastroenterol. 15:*611 (1948).

(5) Lehr, D., *Gastroenterology 12:*648 (1949).

(6) Henderson, E. and Seneca, H., *Am. J. Digest. Diseases 16:372* (1949).

(7) Pardo, E. G., Tellez, D. G. and Hidalgo, C., *Ciencia 10:*79 (1950).

(8) Brownlee, G., Bushby, S. and Short, E., *Brit. J. Pharmacol. 7:*170 (1952).

(9) Jawetz, E. and Bierman, H., *Gastroenterology 21:*139 (1952).

(10) Lieberman, D. and Jawetz, E., *Pediatrics 8:*249 (1951).

(11) Quintos, F. N., *J. Philippine Med. Assoc. 26:*155 (1950).

(12) Joslin, C. L., *Delaware State Med. J. 25:*35 (1950).

(13) Fitzpatrick, V., Hunter, R. E. and Brambel, C. E., *Am. J. Digest. Diseases 18:*340 (1951).

(14) Gabroy, H. and Horoschak, S., *Rev. Gastroenterol. 19:*660 (1952).

(15) Kissin, M., Yaskin, H. and Morgan, D., *Rev. Gastroenterol. 19:*576 (1952).

THE PHARMACEUTICAL MANUFACTURER'S STAKE IN THE PRESCRIPTION DEPARTMENT *

By Vincent A. Burgher **

THERE is usually an accepted pattern or procedure which is followed when a gift is presented to one person by another.

When any one of you, or when I, receive a present, nicely wrapped, we accept that gift with appreciation, and we keep and we cherish that gift.

However, I can think of an exception to that basic philosophy pertaining to gifts and that exception, multiplied many times, generally manifests itself on or about the second of January of each year. The shirt which we receive for Christmas—on many occasions, finds its way back to the haberdashery or to the department store—not because of the make—not because of the color, but for one basic reason only—because of the size.

If you wear a size 15 shirt, you simply cannot wear a size 14, nor can you wear a size 16—so, you exchange it, not for something else, but for a size which properly fits you—the subject. The Christmas tie, as you all know, we do wear.

Now to draw an analogy—the invitation—the present—which I received from my very good friend, Lou Kazin, the Executive Secretary for this Conference, meant a great deal to me and I deeply appreciate the privilege of appearing before you today.

The subject assigned to me is—"The Pharmaceutical Manufacturer's Stake in the Prescription Department" and I do not believe that it properly "fits" if I may use that terminology—that it fully covers the ramifications of this most important subject.

So I am going to take the liberty of making an *exchange*.

The channels of promotion and the desired ultimate objectives of the prescription pharmacist and the ethical manufacturer parallel to a very marked degree. They both need and they must receive the support of the same groups—the members of the medical profession

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** Vice President CIBA Pharmaceutical Products, Inc., Summit, New Jersey.

and the buying public—or they cannot survive. The prescription pharmacist and the manufacturer should work together, to command and warrant the respect and the liking of the physician—to make him desire to do business with both—directly with the prescription pharmacy and indirectly with the manufacturer.

Both the ethical pharmacist and the ethical pharmaceutical manufacturer desire to contribute to the betterment of our fellow man; to provide honest medications by honest methods.

Their operations are obviously intermeshed to a very major degree, and all that is necessary for continual smooth and productive functioning, is the routine "oiling" of those operations with understanding, trust and collaboration.

One is so dependent on the other for mutual progress and maximum success, that they cannot, a la amoeba, divide and each go his separate route.

It is a two-way street, Ladies and Gentlemen, and the prescription pharmacist and the manufacturer should be able to walk together down one side of that street, amiably, cooperatively and profitably, and be so satisfied that they desire to return on the other side—still arm in arm and each invigorated and in better health, as a result of his walk.

So we must consider when we discuss this far-reaching subject, not only "The Pharmaceutical Manufacturer's Stake in the Prescription Department" but also, "The Prescription Department's Stake in the Pharmaceutical Manufacturer."

Let us start our walk down this street on the side which deals with the pharmacist's stake in the manufacturer. Then we will come back the opposite side of the street dealing directly with our assigned topic, "The Pharmaceutical Manufacturer's Stake in the Prescription Department."

Statistics show that the annual growth rate for the ethical drug industry from 1939 to 1953 has been about 14%. This compares with a growth rate of 9% for the proprietary drug industry. The prescription department has become steadily more important for the pharmacist. In 1937, prescription sales contributed only 13% of the total drug store volume; in 1952, this figure rose to a whopping 24%. Last year the gross profit realized by pharmacists on ethical drug specialties exceeded 300 million dollars.

Medical research, largely supported by the pharmaceutical industry, has produced a flood of new specialties which are largely re-

sponsible for this tremendous growth in sales. It is estimated that the American pharmaceutical industry spends 100 million dollars annually on pure research. The pharmacist is indebted to the manufacturer for very much of the growth in his prescription volume, for 80% of the prescriptions filled today are for specialties of the pharfaceutical manufacturer. It has been frequently pointed out that 42% of the prescriptions written today could not have been filled five years ago. Likewise, 85% of the specialties in use today were unknown ten years ago. The rapid development of these new drugs has increased the average life span, thus creating more older people, and older people use more medication. The ethical market under the stimulus of pharmaceutical research should continue to grow rapidly as new specialties are developed to conquer or combat some of the remaining diseases which medical science has not yet learned to control.

We have all heard many complaints about the large volume of new products, particularly those which are sometimes duplications of existing specialties. It is my opinion that you will find fewer duplicates as time goes on. The manufacturer is learning, or has learned, that there is little profit in *mass* duplication. His major profit comes from new and distinct specialties. Such products are the life blood of our industry and are largely responsible for the rapid growth in the sales volume and the profits of both the druggist and the manufacturer.

I would like to emphasize that the increasing of the inventory of the prescription department through stocking such specialties represents sound investment for the druggist, for while inventory has been expanded, increased sales and profits have been realized.

Now just a brief word relative to my own belief that I have expressed and emphasized on very many occasions. I feel very strongly that, if a specialty of a manufacturer is no longer being prescribed by the medical profession, the druggist should be permitted to return unopened and unbroken packages of that product to the source from which he purchased it, and he should be able to return it at full credit. If the manufacturer does not move his prescription specialty, then the druggist should certainly not be the loser.

What does the manufacturer do to promote these specialties for himself and for the prescription pharmacy? To introduce and sell a new or an established product, he carries on a heavy volume of journal advertising, of direct mail to physicians, of sampling and of

sales efforts through the detail man. The major portion of these efforts are designed to promote the writing of prescriptions, which must go through the prescription department of pharmacies throughout the nation. Progressive major specialty manufacturers spend an average of 30 to 35% of their sales dollar on promotional efforts to move their specialties from the pharmacy. This compares with an average of only 1% of sales dollars spent by the average store. Competing specialties often increase the size of a market; for example, several years ago Gantrisin, Hoffmann-LaRoche's sulfonamide, if I may give my very good friend, Bob Hardt, some unpaid for publicity, enjoyed a satisfactory volume of sales and was the major single sulfonamide on the market. CIBA introduced and promoted very heavily a good new sulfonamide, Elkosin, which product soon achieved a fairly good market volume. Meanwhile, however, to meet this new competition, Hoffman-LaRoche increased their promotion of Gantrisin and today, despite the introduction of Elkosin, Gantrisin sales are considerably larger than they were before we introduced our product. Other manufacturers of sulfonamides also were stimulated to spend more promotional money and the result has been a larger sulfonamide market with more profits for the druggist.

Statistics show that as the proportion of prescription income to total sales increases, there is a marked and notable rise in the average profit per dollar invested in *all* merchandise. In other words, as the number of prescriptions filled by a pharmacy increases, there is also a steady rise in overall profits.

We are all aware of the fact that drug stores are losing volume on fast-moving proprietary items to food stores. This unfortunate trend has made the prescription volume a major asset to the druggist. A recent Curtis drug survey showed that prescriptions accounted for almost 22% of sales volume but occupied only 13% of floor space. There can be little doubt of the importance of prescriptions as a major factor in the druggist's sales and profit picture, and it is submitted that prescriptions will become increasingly important in both respects in the future.

The majority of the manufacturers establish protective minimum fair trade prices on their products to assure a definite profit return to the druggist and the manufacturers must spend money to curtail and prevent violations of their Fair Trade Contracts. At the same time, the druggist should give the fair traded article a "break" and not push a non-fair traded item because it can be featured at a cut price.

Now let's cross over to the other side of the street and as we walk back let's discuss the manufacturer's stake in the pharmacy. First, and foremost is the fact that the retail pharmacy is by far the major outlet for the manufacturer of pharmaceutical specialties. It is estimated that 85% of the total domestic sales of pharmaceuticals move through the retail drug store. This volume at the manufacturer's price level is estimated at around ¾ of a billion dollars annually. There can be little doubt of the importance of the manufacturer's stake in the retail pharmacy when such figures are considered.

The pharmacy serves as the final distribution link between the manufacturer and the consumer. Because many prescription items are toxic and can be dangerous when not used correctly, the manufacturer benefits by having a skilled professional man as the final link in the distribution chain. The pharmacist is such a man. Through his training and knowledge of drugs, it is his legal responsibility to make certain that the patient gets the right drug with adequate instructions for use.

A recent survey conducted by *Chain Store Age* indicates that the pharmacist is becoming an increasingly important source of information for the doctor. The busy physician has relatively little time to study fully his medical journals, to read his direct mail, and to listen to the detail man. Many times he must call upon the pharmacist to remind him of a new drug he has heard about or give specifications upon strength and dosage frequency. The manufacturers recognize this fact and most of them are devoting more time and effort to acquainting the pharmacist with their new products. Our own representatives now make just as many drug calls as they do on physicians. We try to, and we should, acquaint the pharmacist with all the facts about our leading specialties and we ask them to stock them when we are planning a promotional program. The manufacturer very definitely needs that "stocking" support. It is calculated that there are more than 10,000 detail men representing ethical pharmaceutical manufacturers and if they all make as many drug store calls as our representatives, then every drug store in the country can be called upon once a day by one of these men. It can be accepted that some of the smaller stores are not contacted as often as this and many of the larger stores are contacted much more frequently. If we assume an average cost of only $3.00 per drug call, it means that about $150,000 per day or $36,000,000 per year is being spent by the manufacturer in an effort to keep the pharmacist in-

formed of his products by this method alone. Actually, this figure of $3.00 per drug call is undoubtedly quite low and, therefore, total expenditures are well in excess of this amount.

Many pharmacies have special areas set aside for doctors and in these areas they feature new product information. This is an extremely valuable service which they are furnishing for the manufacturer and incidentally also for themselves.

The pharmacy is also an important source of market information for the manufacturer. Many retail drug stores cooperate with the A. C. Nielsen Company, with various prescription panels, and with certain manufacturers in order to provide adequate marketing information to guide the manufacturer in his major business decisions. And this is an extremely valuable service which the pharmacy furnishes.

The pharmaceutical manufacturer realizes full well that the pharmacy is the major outlet for the bulk of his production. He is making major efforts to cooperate with the pharmacy in making this mutual association profitable for both.

For example, CIBA has attempted to cooperate with the pharmacist and at the same time ease his inventory problem by sending on occasions complimentary supplies of major new items to every drug store in the country.

So when we weigh all of these intermeshed factors and many others, we must realize the very great importance of—"The Pharmaceutical Manufacturer's Stake in the Prescription Department." And, I must add, "The Prescription Department's Stake in the Pharmaceutical Manufacturer."

And, Ladies and Gentlemen, while these two really great branches of pharmacy work together to benefit not only themselves—but—all of humanity—and their scientists dream and continue to dream—

Let's all of us—you and me—walk on tiptoe.

THE ADVANTAGES TO THE PUBLIC OF RESTRICTING THE SALE OF DRUGS AND MEDICINES TO THE RETAIL DRUG STORE UNDER THE SUPERVISION OF REGISTERED PHARMACISTS *

By Sol A. Herzog **

BY its very content this subject necessarily must be approached, for the purpose of this discussion, from the viewpoint of the lay public, and of no other group. Consequently, there will be no concern here with technical legalisms or formalisms as found in statutes, and interpretation and application of them. There is probably no need to convince pharmacists of the soundness of the statement of the subject. If, however, it is to have any application or effect, it must reach those who purchase drugs and medicines on their own. Parenthetically, it may be observed that there is another group involved, the manufacturers of drugs and medicines, but that is another story for another day.

Actually then, this long title might well be reduced to a shorter one reading "The Public Should Insist That Only Pharmacies Sell Medicines." The effort here is to substantiate that assertion.

It will be helpful initially, to do some defining, excluding, and including. The definitions here used are lay definitions, taken from a lay dictionary, and free from legalistic content.

The word "restrict" is generally defined as meaning "to limit", "to hold" or "keep within bounds or limits"; a frequently used synonym is "to confine."

"Sale" hardly requires any definition except that it should be noted that this unquestionably means "sale" without restraint, restriction, or limitation of any sort.

"Drugs" and "medicines" are not quite so susceptible to unequivocal translation into colloquial content. This audience is familiar with the definitions set forth in statutes—definitions based upon reference to the compendia and curative and diagnostic utilization. That is not helpful here. To a large segment of the lay public "drug"

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** Professor of Jurisprudence, College of Pharmacy, Columbia University.

in colloquial use, means a narcotic, or frequently, a glut—"a drug on the market." For the purpose at hand, it may be defined as any substance used as for, or in, a medicine. The meaning of this latter term as a substance possessing or reputed to possess, curative or remedial properties is quite common. Overlooked may be the colloquial use assimilating the term to punishment, a rather unhappy connotation.

"The retail drug store" is almost self-defining so far as the lay public is concerned. It is a place for keeping drugs and medicines, and for their sale in small quantities. An obsolete synonym is the term "druggery," a sort of sinister sounding term, and its use is therefore not recommended. Incidentally, it would be more fitting if the term "retail drug store" be done away with and the term "pharmacy" utilized in its place. After all, one who keeps a store may properly be designated as a storekeeper, and that is the very result the pharmacist should shun. To be true, the lay public does realize that a "drug store" is not an ordinary mercantile enterprise, because the knowledge is general that some sort of governmental license or permit is necessary before that term may properly be used. Nevertheless, the more professional designation is to be preferred.

Similarly, the term "registered pharmacist," as indicating one who is skilled in the art and science of compounding and preparing medicines, is quite generally known. The public knows also that before a person qualifies as such he must have completed college training and passed an examination given by the state.

Supervision is a more elastic term. Whether it be actual, direct and personal, indirect or formal, indeed merely nominal, it would still fall within the concept of the term as indicating general oversight or superintendence. Perhaps this phase should be tightened up, for it does seem open to the objection that it affords too many loopholes. But one thing is certain—the pharmaceutical profession should not shy away from importing into the term "supervision" as used here, the concept of responsibility—an actual, immediate responsibility—neither remote, indirect, nor nominal.

Finally, it is noted, certain articles such as toiletries, beauty aids, dentifrices, shampoos, soap, and the like are not included hereunder; and of course curative items such as narcotic or habit-forming drugs, poisons and those that by law may be dispensed only upon prescription. To use as criterion for exclusion the terms "dangerous" or "deleterious" will hardly suffice, because those terms are highly

elastic in their application and lack the specificity needed. In short, the terms "drugs" and "medicines" should be confined to articles that are genuinely curative and therapeutic, and designed to alleviate, remedy, remove, cure or treat an ailment, whether internal or external, regardless of its cause or how it came into being. So the topic may be rephrased once again—Non-prescription remedies should be sold only by state qualified persons in state qualified establishments.

Why should the sale of such be restricted to the supervision of the professional pharmacist? One ready answer occurs. Drugs and medicines are inextricably intertwined with health. There seems to be a basic incongruity in asserting that items having to do with one's health may be indiscriminately and promiscuously vended. The experience of modern life has been to impose, with respect to all practices dealing with health and sanitation, higher and stricter requirements. Thus the conditions precedent to attaining the status of doctor, dentist or nurse, or veterinarian, the requirements for a hospital, of community standards, are constantly increasing.

The thesis here advanced is merely consonant with this process. Its denial, in effect, would approve the sale of drugs or medicines by the house to house peddler, the itinerant vendor, or indeed, why not from a vending machine? That may have sufficed when most prepared medications—the patent medicines—consisted of highly flavored concoctions of a generous alcoholic content, in a simpler day, touted as effectively remedial for all ailments from toe to hair, and all spots in between. It is no rebuttal to say, as is so frequently said, that these so-called domestic, and household, and proprietary items are generally harmless, and so may be taken and used without possible detriment. That involves an inconsistency to which, too oft, the eye is deliberately shut. If so universally free from any potential harm, then they must be virtually impotent, and if so weak, they can hardly be effective. Yet their sale is pushed on the ground they are so very effective. To the person to whom its use is harmful, or fatal, it is hardly a solace that so many others used it with impunity and safety, whereas he had been singled out, so to speak. Modern medical science regards very seriously percentages smaller even than that which would have moved the Lord at Lot's prayer.

The public, however, should know the essential fact that all drugs and medicines are composed of, and contain drugs, and chemicals, and botanical substances, that are powerful, and if they are

powerful, they are therefore potentially dangerous. Pain relieving remedies, so-called cough mixtures, digestive remedies, even though designated by terms that have acquired almost colloquial characteristic, contain drugs that are powerful; they are therefore dangerous. And it is immaterial that their commercial designations constantly assault the eye and the ear—and the pocketbook.

These articles are drugs; they are medicines; they contain these powerful agents, and therefore they require proper handling and adequate care. Some simple remedies deteriorate rapidly and lose all curative properties. A volatile substance such as peroxide can almost completely change in its characteristics and become useless for any purpose. The alcohol used in preparing tincture of iodine will evaporate readily; and consequently the product when then used is so strong that it becomes harmful to bodily tissue. Aspirin can, if held too long or under improper conditions, spoil, and instead of remaining an integrated unit of pain relief, separate into harmful acids that can result in poisoning. Even boric acid powder has been questioned. This sort of listing can be, and should be, to the public, expanded and reiterated.

The essential point to be driven home to the public is that the pharmacist not only knows in advance of these limitations upon the handling and dispensing of articles of this sort; he is, through his professional journals, through intimate contact and detailing by pharmaceutical houses, and through communications from his professional control bodies, immediately notified when a situation is discovered to be dangerous. This kind of emergency situation is familiar to all boards of pharmacy and pharmacists, the Food and Drug Administration, and manufacturing pharmaceutical houses. They have been prompt, vigilant, and efficient, in removing from the shelves of pharmacists items so involved. However, how is it possible, effectively, to quarantine and isolate such items when distributed among the many tens of thousands of stores that sell groceries, meat, fruit, candy, tobacco, and perhaps innumerable vending machines in gasoline stations and railroad stations, or in the hands of door to door vendors? To ask the question is to answer it. Nor should the vending machine idea, or the itinerant, be lightly dismissed as constituting merely a horrendous prospect. It follows logically; as does also the great hazard to public health resulting from vending machines containing drugs and medicines being broken into, the articles stolen, and misused.

The significant trend today of the great increase of medicinal items involves the utilization of powerful chemicals. True they may be dispensed only on prescription of a doctor. To some extent the lay public knows, and it should be constantly reminded, of the hazards that have attended their use even under the careful scrutiny of a doctor. Those same ingredients ultimately find their way into the prepared medicines. Immeasurably is that danger enlarged by permitting lay distribution, even though the item be completely packaged, all the directions stated on it, the symptoms and warnings set forth. Does it make sense that these be permitted to be picked off a shelf in a supermarket or emerge from a chute in a machine? These are medicines, they contain ingredients potentially toxic—they are not soap suds or gum.

How much more accessible these items thereby become to immature people, those of distorted mentality, to children, to those suffering perhaps unknowingly, from a type of disorder that makes most unsafe the simplest kind of self-prescribing. Medicinal terms have close resemblance to the unschooled ear and to the untrained eye—the result from a confusion may prove disabling, if not fatal.

This, however, does not exhaust all the applicable reasoning. The negative to the thesis under discussion is based upon a great fallacy, that drugs and medicines are as suitable a proper subject for promotion and pushing as are potatoes or apples, ribbons or underwear, or mechanical and electrical appliances, and the like. That simply is not so . . . The effort to "push" these items and make "specials" out of them certainly cannot be beneficial to the health of the public. Yet it is inescapably clear that the promotion idea, the sales expanding idea, the increased dollar volume that may accrue from exposing drugs and medicines so that they will yield to impulse buying, that strange term that is showing up in such strange places these days, must be, and is, the stark, naked reason for the current efforts to break down the safeguards built up over these many years—and predicated upon bitter experience—experience now so casually, and callously, disregarded.

Contemplate for a moment the wild, almost reckless, claims made in recent years for the curative and preventive qualities of certain articles relating to the person. True, even though the claims when measured against the cold reality of scientific appraisal and analysis, fell far short or disappeared completely, no great harm was done. No one got sick because the dentifrice did not prevent the caries, or the

chlorophyl did not remove that horrible social disfigurement of b. o. But this can be genuinely serious if the same thing happened with respect to medicines taken internally, for real or for fancied illnesses. Governmental safeguards reach the normal majority—they cannot avail the allergic person, or the one with a circulatory, cardiac, diabetic or respiratory condition. This condition may not, in itself, be serious, or it may be even unknown to the individual. But a wrong ingredient may trigger an unfortunate reaction. The trained pharmacist is certainly infinitely better equipped to spot such a condition, or to ask the question that will elicit the fact. The supermarket shelf is useful only as the approach to the cash register.

Other definite advantages are present. Most pharmacies are small; they are individually owned; they afford maintenance of that personal contact so certainly highly desirable, if not essential, in all matters respecting health. Indeed what is more personal than health. The pharmacist can ask the question which may tell the prospective buyer not to buy an item. He can make helpful suggestions respecting accessories to go along with an article purchased for medicinal, and curative purposes. He can be of real assistance in setting up the preventive items to go into a family medicine chest and see that they constitute a balanced group. He can stress also the need for proper care and for timely replenishment and replacement to avoid the deterioration which sets in so rapidly—a fact which is hardly understood or comprehended by the lay public at all. Most people are of the opinion that a cork firmly imbedded freezes the situation for all time!

Then consider also the all important need that the pharmacy be kept alive and functioning so that it may meet emergency needs. A so-called simple proprietary remedy, which some people would freely sell anywhere, by anybody, along with soap flakes and canned peas, may at three o'clock of a morning become a genuine emergency need. The local pharmacist will take care of it. The local grocery man is not likely to be interested. True this does not happen frequently. But at the time that it does happen, and to the person or persons concerned, it becomes the most pressing and most important thing in all the world.

The community assistance that the pharmacy affords twenty-four hours a day, 365 days a year, and one day more every four years, cannot be available unless the pharmacy is enabled to develop, and to remain, strong economically, and thus continue its functioning. To

that extent the public will understand that confining the sale of these items is essential and helpful to it. It does not constitute anything in the nature of monopoly, because there are far too many pharmacies in every community for anything even remotely resembling monopoly.

A current effort, and it is not necessary that here and now its sponsorship be specified, an effort strong and widespread and assiduously pursued, to expand the free marketability of the so-called patent and proprietary medicines and domestic and household remedies, or by whatever term designated, is now being made. In support it is said that there is no particular protection for the public in limiting the sale of prepackaged or prepared medicines because no compounding is required. The pharmacist, runs this argument, has no duty to analyze them, to learn their ingredients, to warn purchasers of the possible danger in their use, nor is he required to limit his sales of such, nor to record them. He is not liable for injuries caused by impurities, misbranding or negligence in their preparation; they are sold by ordinary clerks or put on self-service shelves or bins. Not the slightest iota of professional skill is involved, nor professional liability assumed, merely by selling as retail prepackaged remedies. So goes the contention.

The vice in this lies in the assumption that all prepackaged remedies are under all circumstances harmless. That is an evasive, reprehensible, dangerous concept that is being assiduously and thoroughly spread throughout the country by every device and means of modern "hucksterism." With respect to that, pharmacy has a tremendous responsibility to the public. The public will respond if it is told the truth and the facts in fair and proper fashion. Along with that must pharmacy stress, and assume, individualized, professional responsibility to the consumer, who so greatly needs its guidance. Thus only may that need be met.

Advanced also in rebuttal is the so-called convenience argument, that simultaneously with picking off the shelf the dry cereal and the condiment, the housewife will be able to pick out the chest remedy and the anodyne. This hardly holds water. The pharmacy is ubiquitous enough to meet the convenience of all.

The essentially true fact of the matter is a far cry from constituting "a legislative monoply masquerading as a health regulation." The real reason for unrestricted sale of medicines is to get more money from their sale. That can be done only by straight commercial promo-

tion, use of "specials" and other pressure devices. That can be done only at the expense of the public's health.

Thus the advantages to the public of so confining the sale of drugs and medicines are obvious; they are sound and should be made controlling. Opposed is only a selfish desire for more dollars, but the dangers to the community resultant from the exploitation of that selfish motive are tremendous. Let it be reiterated, again and again, that health protection must be as tightly screened as possible. Once told the facts, the public will not stand for a large mesh.

Enunciated here are merely the principles—for the public these can be simplified, and illustrated by homely instance. Also pharmacy must change some of its habits, and among them, resist the self-service lure and resume the personal contact.

The advantages here spoken of exist—intelligent action by pharmacy will drive them home to the public and assure their acceptance.

SELECTED ABSTRACTS

A Neutral, Emollient Lotion Formula. Becker, S. W., Jr., and Gruber, G. J. *The Bull. of the Amer. Soc. Hosp. Pharm. 11:*107 (1954). Several formulations were tried before the final formula was developed, having the characteristics desired. The characteristics wanted in the lotion were: a neutral or slightly acid pH to preserve the natural acid mantle of the skin, a viscosity permitting easy pouring and spreading, hypo-allergenic and low-cost ingredients, stability and compatibility with medicinal ingredients normally employed, water soluble and cosmetically pleasing, and the property of counteracting dryness of the skin without being so oily that the patient would leave greasy fingerprints on paper.

The following formula was found to possess the desired characteristics:

Stearic Acid	2.0 Gm.
Glyceryl Monostearate	2.0 Gm.
Spermaceti	1.0 Gm.
Carbowax 400	2.0 ml.
Olive Oil	5.0 ml.
Sod. Lauryl Sulfate	0.4 Gm.
Gelatin	0.3 Gm.
Distilled Water, to make	100.0 ml.

The waxes and oil should be melted together on a water bath. The sodium lauryl sulfate and gelatin are dissolved in 85 ml. of water and heated to 75° C. The wax-oil mixture is added to the hot water phase with constant stirring and then cooled to room temperature with constant stirring. The oil in water emulsion formed has a pH of 7.0 to 7.08.

The lotion was found to be stable to repeated freezing and thawing and to storage for as long as 17 days at 37° C. It was found to be compatible with 10 per cent more olive oil, 1 per cent menthol, 5 per cent Coal Tar Solution, 1 per cent resorcinol, neomycin sulfate, estrogens in oil, salicylic acid, vitamin A, and water soluble hormones. The total cost of 100 ml. of the lotion base, excluding labor, was approximately six cents.

The Effect of Tripelennamine Hydrochloride Upon Visual Performance. Kutscher, A. H., Chilton, N. W., Lane, S. L., and Koepchen, E. E. *Int. Record of Med. and Gen. Pract. Clin. 167:*159 (1954). Because of the soporific and other side effects of tripelennamine and many other antihistamines, it has usually been recommended that they not be administered to ambulatory patients where the dulling of the senses might endanger the patient at his work or other activity. This study was undertaken to evaluate the action of a typical antihistamine on visual performance and also to establish a technic for measuring visual acuity, stereoscopic perception, and color perception with an optical device, the Ortho-Rater.

Twenty subjects were tested before and 1½ hours after receiving a placebo and, in a separate trial, a 50 mg. tablet of tripelennamine hydrochloride. The test device measured acuity as the smallest perceptible detail in black and white discernible at a specified distance. Phoria measurements indicated the lateral and vertical angles between the visual axes of the two eyes when they were not required to maintain coincidence on any single fixed point, but with the eyes focused at a specific distance. Depth perception was measured as the ability to perceive minimum differences in distances between two objects when all clues were eliminated except binocular parallax. Discrimination of color was a measure of the least difference between colors.

A statistical evaluation of the results showed that 50 mg. of tripelennamine hydrochloride did not significantly affect the visual factors studied. It also indicated that the Ortho-Rater has value as an instrument for testing the effect of therapeutic agents upon visual performance as well as its established usefulness in the administration of occupational vision tests.

Prophylactic Use of Vitamin K in Hemorrhagic Disease of the Newborn. Dam, H., and Plum, P. *Postgrad. Med. 15:*279 (1954). The prothrombin activity of an infant at birth is between 20 and 50 per cent the normal value of an adult. It is much lower in infants who have suffered intra-uterine asphyxia. The increased capillary fragility brought about by anoxia along with very low blood coagulability make hemorrhage a great risk.

The physiologic hypoprothrombinemia at birth is largely unrelated to vitamin K. However, in asphyctic children at birth there is some evidence that the administration of vitamin K to the mother

just prior to or during labor has some effect on the prothrombin activity.

During the first week of life there is normally a decline in prothrombin activity in the breast-fed infant. This decline is not found in artificially-fed children. The administration of vitamin K to mothers immediately before or during labor, or to infants at birth, will almost always eliminate the decline in prothrombin activity observed in breast-fed infants. In a series of 10,876 infants whose mothers received vitamin K as compared with a series of 22,371 infants whose mothers did not receive vitamin K, there was a significant difference in the incidence of hemorrhages of various types, including, melena, umbilical, adrenal, subcapsular hepatic, intraperitoneal, cutaneous, cephalhematoma, and intracranial. In the case of the more serious intracranial hemorrhages, the difference in frequency was considerably greater in prematures than in full-term infants.

The above statistical evaluation gives evidence that the administration of vitamin K to mothers is of definite prophylactic value. The intramuscular administration of 40 mg. of Synkayvite to the mother, or of 10 mg. to the infant at birth, was suggested.

Norepinephrine Effective in Cases of Irreversible Shock. Sampson, J. J., and Zipser, A. *Circulation 9:*38 (1954). Generally, in persons who are in shock for several hours as a result of myocardial infarction or surgical and hemorrhagic conditions, an irreversible state develops. The authors reported a series of 30 cases in whom 20 recovered from the shock of myocardial infarction as a result of the continuous intravenous infusion of norepinephrine (Levophed). About 40 per cent of the patients who recovered had been in shock for 3 hours or longer before receiving the drug. One had been in shock for 25 hours.

The author found that an average dose of 7.5 micrograms of the drug per minute was required in order to elevate and sustain the blood pressure. Doses as low as 1.5 micrograms produced optimal responses in some cases. The authors urged that large doses should be tried before concluding that the patient is refractory to treatment with norepinephrine.

In cases where shock has lasted for more than four hours, blood and plasma are rarely found to produce beneficial results. The

results obtained with this vasoconstrictor upon continuous administration may cause a re-thinking of the previous concepts of irreversible shock. The authors also suggested that norepinephrine should be tried early for the prevention of persistent shock and severe hypotension. If it proves effective in such early use it may thereby prevent further damage to the heart and other vital organs.

The Use of Silicones as Protectives in Dermatologic Conditions. Morrow, G. *Calif. Med. 80:*21 (1954). An ointment containing 30 per cent Dow-Corning 200 silicone (dimethylsiloxane polymers) in White Petrolatum U. S. P. was used as a protective coating on the dermatologic conditions of 107 patients. These dermatologic conditions included dermatitis venenata caused by various irritants, circumscribed neurodermatitis, atopic dermatitis, and nummular eczema of the hands. The ointment was applied over the affected area and the excess rubbed off with a clean cloth. The protective film so formed protected the skin and permitted healing to progress. A complete cure or satisfactory control was obtained in 83 of the patients treated.

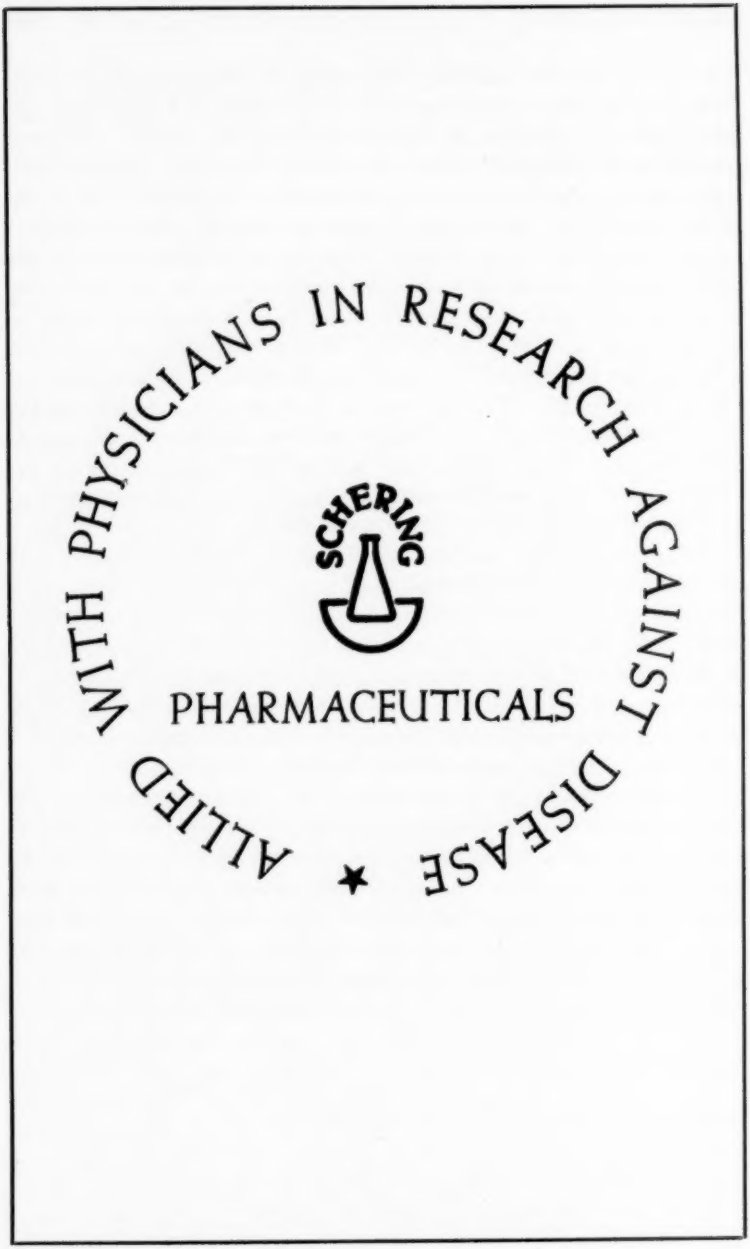
After healing had occurred the patients were instructed not to use the ointment constantly, but to apply it only before they were to come into contact with the agents causing their dermatologic disturbance. They were thus frequently able to discontinue other protective measures, such as the wearing of gloves, which had previously been more or less routinely required. Sensitivity reactions to the ointment did not develop in any patient during more than a year of observation.

The author pointed out that previous efforts to compound the silicone in a water dispersible base provided a film which peeled off too easily to provide adequate protection. The film provided by the white petrolatum base adhered very well. Three or four scrubbings with water were required to remove it.

The author stated that the ointment should not be applied to the eyelids nor to "weeping" areas of the skin. He also stated that the ointment is not visible on the skin, it does not interfere with tactile sensations, and it does not occlude perspiration.

The Treatment and Safety Testing of Poliomyelitis Vaccine. Salk, J. E., Krech, U., Youngner, J. S., Bennett, B. L., Lewis, L. J., and Bazeley, P. L. *Am. J. Pub. Health 44:*563 (1954) The formaldehyde treatment for inactivation of the virus and the safety testing of the vaccine is conducted with precision and detail, for safety of the vaccine with respect to infective particles of virus is of paramount importance. The authors discussed the methods used for the formaldehyde inactivation of the virus and the precautions employed. A 1:4000 to 1:8000 concentration of formalin is used at a temperature of 35-37° C. and a pH of 7.0. At intervals during the inactivation, samples of each batch are titrated for activity. These points are plotted on a graph. The inactivation reaction is allowed to continue for a total period equal to 3 times the time required to achieve an activity of one 50 per cent tissue culture infecting dose per 0.5 ml. of vaccine. This provides an adequate margin of safety without over-inactivation and excessive antigen destruction.

Safety tests are then conducted on samples taken from a pool containing a mixture of all three strains of virus vaccine. The excess formaldehyde is inactivated by sodium bisulfite and then dialyzed. Forty roll tube tissue cultures of monkey kidney tissue are each inoculated with 0.5 ml. of the vaccine fluid. Subcultures of these initial cultures are done twice. An intracerebral injection of 0.5 ml. of the fluid is given to each of 10 monkeys. These animals are observed for 4 weeks and then examined histologically and serologically for the presence or absence of nonparalytic polio. In addition, 5 monkeys are inoculated intramuscularly with 10 ml. divided into 4 sites to establish the safety of intramuscular administration. Another group of 5 monkeys are given 3 doses of 1 ml. each at intervals of 1 week. Blood samples are then titrated for antibody against each virus type. After these safety tests have been satisfactorily passed, Thimerosal N. F. (1:10,000) is added as a preservative of sterility.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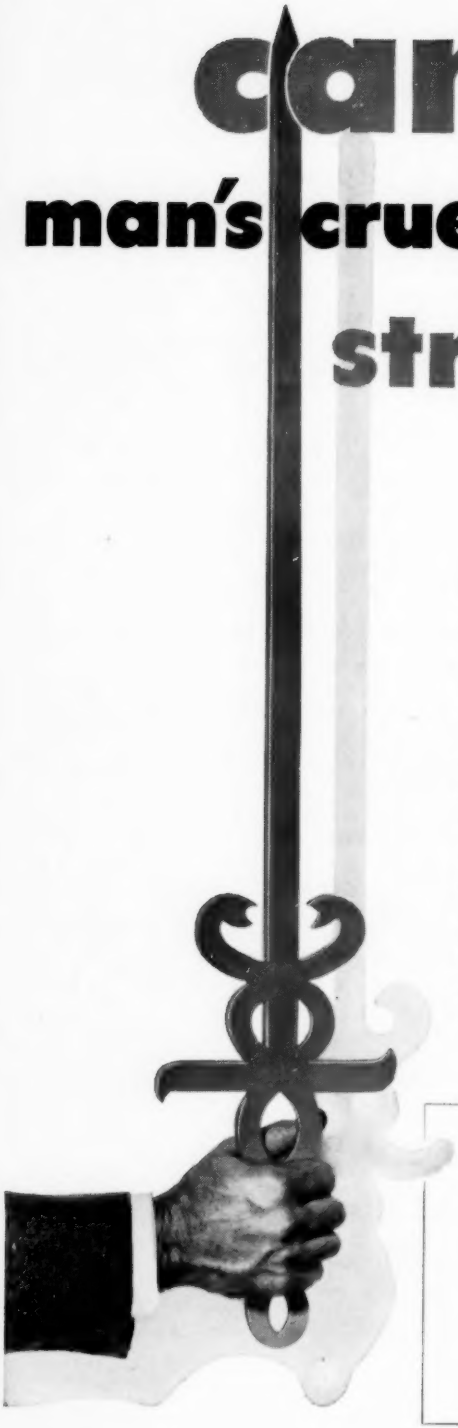

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